lished in Strassburg under the editorship of Professor F. Hofmeister. It is to be published by F. Vieweg & Son, of Braunschweig. Twelve numbers will form a volume, to cost fifteen marks.

ACADEMIES AND SOCIETIES.

THE SUMMER MEETING AND COLLOQUIUM OF THE AMERICAN MATHEMATICAL SOCIETY.

The Eighth Summer Meeting of the American Mathematical Society was held at Cornell University, Ithaca, N. Y., on Monday and Tuesday, August 19–20, 1901. The Third Colloquium of the Society opened on Wednesday, August 20, and extended through the remainder of the week.

About sixty persons, including forty-five members of the Society, were in attendance during the four sessions of the summer meeting. The president of the society, Professor Eliakim Hastings Moore, occupied the chair. An address of welcome by Professor L. A. Wait, representing the University, was the forerunner of a most generous hospitality extended by the University and its individual officers. Formal resolutions adopted by the Society at the close of the meeting express in part its sense of appreciation of this cordial reception.

At the meeting of the council, Dr. E. R. Hedrick, of Yale University, and Mr. S. W. Reaves, of Michigan Military Academy, were elected to membership in the Society. Twelve applications for membership were received. A committee was appointed to prepare a list of nominations of officers for the coming year.

The entire time of the four sessions barely sufficed for the presentation and brief discussion of the long list of papers. Owing to various circumstances, only two days could be devoted to the meeting, while three would not have been excessive. At future summer meetings more time must be provided. Probably the annual meeting in December will also be extended to cover two days.

The following papers were presented:

1. PROFESSOR MAXIME BÔCHER : ' On certain pairs of transcendental functions whose roots separate each other.'

2. DR. J. I. HUTCHINSON : 'On a class of automorphic functions.'

3. PROFESSOR A. PRINGSHEIM : ' Ueber den Goursat'schen Beweis des Cauchy'schen Integralsatzes.'

4. PROFESSOR A. PRINGSHEIM : ' Ueber die Anwendung der Cauchy'schen Multiplicationsregel auf bedingt convergente oder divergente Reihen.'

5. MR. W. B. FORD : 'On the expression of Bessel functions in terms of the trigonometric functions.'

6. PROFESSOR E. H. MOORE : 'On the theory of improper definite integrals.'

7. PROFESSOR OSKAR BOLZA : 'New proof of a theorem of Osgood in the calculus of variations.'

8. DR. G. A. BLISS : 'The problem of the calculus of variations when the end point is variable.'

9. DR. J. C. FIELDS : ' On certain relations existing between the branch points and the double points of an algebraic curve.'

10. DR. J. C. FIELDS: 'The Riemann-Roch theorem, and the independence of the conditions of adjointness in the case of a curve for which the tangents at the multiple points are distinct from one another.'

11. PROFESSOR E. B. VAN VLECK : 'A proof of the convergence of the Gaussian continued fraction

$$\frac{F(a, \beta+1, \gamma+1, x)}{F(a, \beta, \gamma, X)}.$$

12. PROFESSOR T. E. MCKINNEY: 'Some new kinds of continued fractions.'

13. PROFESSOR E. D. ROE : 'Note on symmetric functions.'

14. DR. G. A. MILLER : 'Groups defined by the orders of two generators and the order of their product.'

15. DR. H. F. STECKER : 'On the determination of surfaces capable of conformal representation upon the plane so that the geodetic lines shall be represented by a prescribed system of plane curves.'

16. MR. C. N. HASKINS : 'On the invariants of quadratic differential forms.'

17. DR. EDWARD KASNER : 'The cogredient and digredient theories of double binary forms.'

18. PROFESSOR MAXIME BÔCHER : 'On Wronskians of functions of a real variable.'

19. MR. F. G. RADELFINGER : ' The analytical representation of a multiform function in the domain of an isolated singular point.'

20. DR. VIRGIL SNYDER : ' On the forms of unicursal sextic scrolls with a multiple linear directrix and one double line.'

21. DR. H. F. STECKER : ' Concerning the osculating plane of m-fold space filling curves of the Hilbert-Moore type.'

22. DR. H. F. STECKER : ' On non-euclidean properties of plane cubics and of their first and second polars.'

23. PROFESSOR L. E. DICKSON : ' Theory of linear groups in an arbitrary field.'

24. Mr. H. L. Rietz : 'On primitive groups of odd composite order.'

25. Miss I. M. Schottenfels : 'On the non-isomorphism of two simple groups of order 8!/2.'

26. Professor L. W. Dowling : 'On the generation of plane curves, of any order higher than four, with four double points.'

27. Professor L. E. Dickson : 'The configuration of the 27 lines on a cubic surface and the 28 bitangents to a quartic curve.'

28. Professor E. H. Moore : 'Concerning the second mean value theorem of the integral calculus.'

29. Dr. I. E. Rabinovitsch : 'The application of circulants to the solution of algebraic equations.'

30. M. Emile Lemoine : 'Note sur la construction approchée de π de Mr. George Peirce.'

31. Dr. C. W. McG. Black :

32. Professor Alexander Pell : 'Some remarks on surfaces where first and second fundamental forms are the second and first respectively of another surface.'

At the Colloquium, which was attended by twenty-three persons, two courses of four lectures each were presented :

Professor Oskar Bolza : 'The simplest types of problems in the calculus of variations.'

Professor E. W. Brown : 'Modern methods of treating dynamical problems, and in particular the problem of three bodies.

It is hoped that these lectures may be published in complete form. A summary of them will appear in the *Bulletin.*

The next meeting of the Society will be held in New York, on Saturday, October 26.

F. N. Cole,
Secretary.

PALEONTOLOGICAL NOTES.

VERTEBRATES FROM THE TRIAS OF ARIZONA.

As recently noted in Science, Mr. Barnum Brown was engaged during May and June of this year in making collections for the U. S. National Museum from the Trias of Arizona. The exploration was undertaken in the hope of obtaining ancestral forms of the Stegosaurs, and while unfortunately this hope was not realized much interesting material was obtained, although, like most Triassic specimens, in a very fragmentary condition. A large share of this represents the large Belodont from the Trias of Utah, described by the writer under the name of *Heterodontosuchus ganei*, and comprises frag-

ments of the skull, numerous dermal plates, many vertebræ, all badly broken, and portions of the pelvis and limbs, besides an absolutely complete humerus, ulna and scapula. That this last bone should have escaped destruction, while others far more solid were shattered and scattered beyond redemption, is one of the many puzzling facts that come under the notice of paleontologists. Associated with the Belodont are some bones of a Dinosaur, and as a few teeth referable to the genus *Palæoctonus* of Cope are present they also probably belong to that genus. A humerus has the deltoid and other muscular ridges remarkably well developed, indicating a reptile of the strength and agility that one might expect from the owner of such teeth ; it is nearly solid and smaller than might have been expected from the size of the teeth.

In a bed of conglomerate Mr. Brown obtained a number of more or less fragmentary bones, which from the shape of some associated scutes apparently belong to Cope's *Episcoposaurus.* These specimens, and the clayey matrix containing them, are unluckily thoroughly permeated with alkali, which will make their preparation, or even preservation, a matter of difficulty.

Perhaps the most interesting of the specimens are the deeply sculptured ventral plates of some extremely large Labyrinthodont. The interclavicle, which is complete, is 40 cm. long, and 30 cm. broad, 16 by 12 inches, about the size of the corresponding bone in the European *Mastodonsaurus.* It may be of interest to note that when in Washington this spring Dr. Eberhard Fraas identified a fragment of a cranial plate from the same locality as the above as belonging to this genus.

It will be seen that all the species obtained are typically Triassic, the Belodont and *Mastodonsaurus* preeminently so.

F. A. Lucas.

THE APPROACHING MEETING OF THE BRITISH ASSOCIATION.

The British Association—for so it is universally called in Great Britain without any further specification, a testimony to its supremacy among associations—meets at Glasgow on Sep-